

**UTILITY PATENT SPECIFICATION  
OF MARK W. ARENDS FOR  
STARTING BLOCK WITH CONNECTED PEDALS**

**CROSS-REFERENCE TO RELATED APPLICATION**

5           [0001] This application claims the benefit of U.S. Provisional Application Serial No. 60/443,689, January 29, 2003.

**FIELD OF THE INVENTION**

          [0002] This invention relates to track and field equipment. More particularly, this invention relates to starting blocks.

**BACKGROUND OF THE INVENTION**

10           [0003] Track and field is a sport in which athletes compete in running, jumping, and throwing events. Most running events are held on oval tracks located either outdoors or indoors. The surface of the oval tracks is typically a synthetic material, although some outdoor tracks are still made of cinders or  
15           the like. In many running events, each runner starts the race from a crouched position with his feet against a starting block. A starting block is a piece of equipment having a rail portion with two foot pedals. When the race begins, the runner is able to push back against the starting block and accelerate faster than would be possible without the starting block. Each runner has his own  
20           preferred foot placement relative to the starting line so most starting blocks have an adjustment means that enable the foot pedals to move forward and backward along the rail.

          [0004] A wide variety of starting blocks are available commercially. For example, the 2003 catalog of Gill Athletics, Inc. of Champaign, Illinois features  
25           ten different starting blocks. Other starting blocks are disclosed in the patent literature, including Fichter et al., U.S. Pat. No. 3,746,335, issued Jul. 17, 1973; Newton, Jr., U.S. Pat. No. 5,033,738, issued Jul. 23, 1991; and Newton, Jr., U.S. Pat. No. Des. 385,606, issued Oct. 28, 1997. Starting blocks feature many

different kinds of mechanisms for adjusting the position of the foot pedals relative to the rail. Some mechanisms are more easy to adjust than others and some mechanisms engage more securely after adjustment than others. Some mechanisms allow the foot pedals to be separated from the rail while other mechanisms do not. Some starting blocks contain downwardly pointed spikes on the rail and foot pedals which enable the starting block to be "set" onto the track and thereby reduce the chance the starting block will slip backward when the runner takes off. Some starting blocks contain handles which enable the starting block to be carried more easily. Some starting blocks contain markings which enable the angle of the foot pedal or the longitudinal distance between the foot pedals to be reset easily to a desired position.

[0005] Despite the many starting blocks that are available commercially or have been disclosed, a demand still exists for a starting block with an improved mechanism for adjusting the foot pedals relative to the rail.

## SUMMARY OF THE INVENTION

[0006] The general object of this invention is to provide an improved starting block. A particular object is to provide a starting block that has an improved mechanism for adjusting the foot pedals relative to the rail.

[0007] I have invented an improved starting block. The starting block comprises: (a) a rail having two outwardly-positioned rows of upwardly-directed teeth and two upwardly-projecting guides running parallel to and between the rows of teeth, each guide having an enlarged tip along its top surface; (b) a pair of foot pedal assemblies, one connected to the left side of the rail and one connected to the right side of the rail; and (c) a pair of connectors for connecting the pedal assemblies to the rail, each connector being capable of placement in a lowered engaged position or a raised non-engaged position with respect to its position along the rail, each connector comprising an engaging member for selectively engaging its respective row of teeth and a sleeve for enveloping and selectively engaging its respective guide, the sleeve being shaped and sized such that, when the connector is in the lowered engaged position, the engaging member engages the teeth and the sleeve engages the enlarged tip of the guide

and such that, when the connector is in the raised non-engaged position, the engaging member is above the row of teeth and the sleeve is retained on the guide.

5       [0008] The starting block of this invention has an improved mechanism for adjusting the foot pedals relative to the rail. The foot pedals are easily and smoothly moved along the rail to the desired location. The foot pedals are securely engaged into place and yet are easily disengaged.

### BRIEF DESCRIPTION OF THE DRAWINGS

10       [0009] Fig. 1 is an upper left and rear perspective view of a preferred embodiment of the starting block of this invention.

      [0010] Fig. 2 is a top plan view thereof.

      [0011] Fig. 3 is a front elevation view thereof.

      [0012] Fig. 4 is a side elevation view of the right foot pedal and the right connector.

15       [0013] Fig. 5 is a side elevation view of the rail.

      [0014] Fig. 6 is a side elevation view of the right foot pedal connected to the rail.

      [0015] Fig. 7 is a rear perspective view, partially in section, showing a connector in the raised disengaged position on the rail.

20       [0016] Fig. 8 is partial sectional rear view showing a connector in the lowered engaged position on the rail.

      [0017] Fig. 9 is a partial sectional rear view showing a connector in the raised disengaged position on the rail.

### DETAILED DESCRIPTION OF THE INVENTION

25       [0018] This invention is best understood by reference to the drawings. A preferred embodiment of the starting block 10 of the present invention contains five components, a rail 20, a left foot pedal assembly 30, a left connector 40, a right foot pedal assembly 50 and a right connector 60. The components are preferably made of extruded aluminum for freedom from rust,  
30       light weight, and smooth operation during pedal adjustment. However, other

materials, including steel, cast aluminum, and the like, are suitable. The five components are discussed in detail below.

[0019] The rail forms a link between the left foot pedal assembly and the right foot pedal assembly and enables them to be adjusted relative to each other along the length of the rail. The rail generally has a length of about one to four feet, preferably about two feet, and rests upon the track surface. The rail has two outwardly-positioned rows of teeth, one row 21 running along the left side and one row 22 running along the right side. The rail has two upwardly-projecting guides 23 and 24 that run parallel to and between the rows of teeth. Each guide resembles a wall with outward projections along its top surface that form an enlarged tip. In the preferred embodiment shown, the outward projections of the guide are opposing shoulders that angle upwards to join at a point forming the shape of an upwardly pointed triangle, similar in cross-section to that of a cone, an arrow, or a tree. However, other shapes for the outward projections are suitable, including rounded, square, and the like. The primary purpose of the outward projections is to retain the connectors as the foot pedals are moved. The outward projections also help to engage the connectors when the foot pedals are in the desired position. The front of the rail contains a handle 25 which is upwardly arching in shape. The rear of the rail contains a rearwardly-angled plate 26 which can be gripped when the starting block is being positioned on a track.

[0020] The design of the left and right foot pedal assemblies is a matter of choice. Conventional foot pedal assemblies are suitable, but the preferred assembly is shown in the drawings. The left and right foot pedal assemblies are identical. For brevity, only the right foot pedal assembly is discussed in detail. Referring now to Fig. 4, the right foot pedal assembly contains a frame 51 that rests upon the track surface. The frame contains downwardly and rearwardly directed spikes 52 that engage the track surface. The rearward direction of the spikes opposes the force exerted by the runner more precisely than conventional spikes which point straight downward. It is preferred that only the foot pedal assembly frames contain spikes. In other words, it is preferred that the rail not contain spikes. Spikes on the rail limit the rearward "setting" action that runners typically apply to the foot pedals before a race. The frame

contains a plurality of steps 53 that, as discussed below, enable the reclining angle of the foot pedal to be adjusted.

[0021] The right foot pedal assembly also contains a reclining foot pedal 54. The foot pedal is preferably contoured to more accurately conform to the shape of the runner's foot. A pad 55 made of a synthetic material is preferably mounted on the front surface of the foot pedal. The pad provides a cushioned surface that allows the spikes of the runner's shoes to engage. The foot pedal is pivotably connected to the frame at pivot point 56. A step member 57 is pivotably connected to the rear of the foot pedal. The step member selectively engages the steps of the frame to set the desired reclining angle of the foot pedal. The right foot pedal assembly preferably contains an integral tape measure 58 which enables the runner to measure the distance from the starting line to the foot pedal so that the pedal can be set in exactly the desired location.

[0022] The foot pedal preferably has a width of about seven to ten inches, most preferably about eight inches. Conventional foot pedals typically have a width of about five inches, but recent research has indicated that a wider foot placement can increase acceleration. The foot pedal preferably contains distance markings along the width of the pedal. The markings preferably indicate the distance from the center point of the rail, or from the same point on the opposite pedal, in units of measurements such as centimeters or inches. The markings enable a runner to place his feet at exactly the desired spacing.

[0023] The left and right connectors are mirror images of each other. In Figs. 7 to 9, only the right connector is shown and the right foot pedal is omitted for clarity. For brevity, only the right connector is discussed in detail. The connector engages both its respective row of teeth and its respective guide of the rail. The teeth are engaged by an engaging member that is, in the preferred embodiment, a pin 61. The pin extends between two walls that are angled slightly outward so they press more tightly against the row of teeth as the connector is lowered. The pin nestles down into the lowermost portion of the teeth when the connector is fully engaged as shown in Fig. 8. When the connector is raised and disengaged, as shown in Figs. 7 and 9, the pin passes above the top of the teeth. The guide is engaged by a sleeve 62. The sleeve

envelopes the guide except at the base of the guide. The sleeve rests upon the enlarged tip of the guide when the connector is fully lowered and engaged to provide additional stability and security. Accordingly, the inside upper surface of the sleeve is preferably of a size and shape that mates with the enlarged tip  
5 of the guide. When the connector is fully disengaged, the sleeve is retained on the guide by the enlarged tip, but otherwise makes minimal contact with the guide.

[0024] The use of the starting block of this invention is similar to the use of conventional starting blocks, but with several major advantages. First,  
10 the foot pedals are easily and smoothly moved along the rail to the desired location. Second, the foot pedals are securely engaged into place and yet are easily disengaged. Third, because the connectors are secured to the rail at two places, the teeth and the guide, the foot pedals do not twist when the runner takes off. Any twisting of the foot pedals is an inefficiency that adversely  
15 affects performance. And fourth, the continuous rail provides exceptional strength and reduces the danger of warping or bending.

[0025] The use of the starting block of this invention also has other advantages. The foot pedals are easily set onto the track by exerting a downward and backward force against them. The runner can easily place his  
20 feet at the desired location. When the starting block is moved, it is carried by the handle. The natural carrying position places the spikes away from the carrier so as to prevent accidental injury.